

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C. 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 03 October 2000 (03.10.00)	
International application No. PCT/GB00/00325	Applicant's or agent's file reference WPP79820
International filing date (day/month/year) 04 February 2000 (04.02.00)	Priority date (day/month/year) 05 February 1999 (05.02.99)
Applicant DAMPNEY, Ian, Trevor et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

01 September 2000 (01.09.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

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 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 03 October 2000 (03.10.00)	
International application No. PCT/GB00/00326	Applicant's or agent's file reference 0121-JL
International filing date (day/month/year) 04 February 2000 (04.02.00)	Priority date (day/month/year) 06 February 1999 (06.02.99)
Applicant JENKINS, Gary, John, Mackay	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

02 September 2000 (02.09.00)

☐ in a notice effecting later election filed with the International Bureau on:
2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Mafla Telephone No.: (41-22) 338.83.38
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TENT COOPERATION TRE. Y

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

BRITTER, Keith, Palmer
Bitter and Co.
Enterprise House
14b Whitehorse Street
Baldock
Hertfordshire SG7 6QN
ROYAUME-UNIDate of mailing (day/month/year)
30 October 2000 (30.10.00)Applicant's or agent's file reference
0121-JL

IMPORTANT NOTIFICATION

International application No.
PCT/GB00/00326International filing date (day/month/year)
04 February 2000 (04.02.00)

1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

Name and Address

BRITTER, Keith, Palmer
Bitter and Co.
Barn West, Dixies
High Street
Ashwell
Hertfordshire SG7 5NT
United Kingdom

State of Nationality

State of Residence

Telephone No.

01462 743000

Facsimile No.

01462 743001

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address

BRITTER, Keith, Palmer
Bitter and Co.
Enterprise House
14b Whitehorse Street
Baldock
Hertfordshire SG7 6QN
United Kingdom

State of Nationality

State of Residence

Telephone No.

01462 894200

Facsimile No.

01462 893636

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☒ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Dominique DELMAS

Telephone No.: (41-22) 338.83.38

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 0121-JL	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 00326	International filing date (day/month/year) 04/02/2000	(Earliest) Priority Date (day/month/year) 06/02/1999
Applicant LINPAC PLASTICS LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 02 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

2
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

National Application No

PCT/GB 00/00326

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D81/26 B65D77/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 197 25 949 A (SILVER-PLASTICS) 24 December 1998 (1998-12-24)	1-11, 14, 16
Y	column 4, line 49 - column 5, line 33; figures 1,2	12
X	EP 0 849 309 A (LANZANI) 24 June 1998 (1998-06-24) page 6, line 1 - line 42; figures 2,3	1,2,4-9, 16
Y	US 4 456 164 A (FOSTER) 26 June 1984 (1984-06-26)	12
A	column 3, line 47 - line 68; figure 6	13,15
A	FR 2 655 027 A (GIZEH) 31 May 1991 (1991-05-31) page 3, line 35 - page 4, line 30; figures	13,15

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

4 May 2000

Date of mailing of the international search report

18/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Newell, P

INTERNATIONAL SEARCH REPORT

Information on patent family members

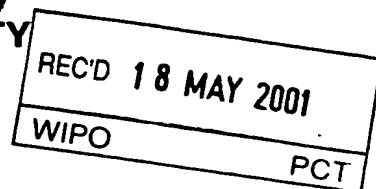
International Application No

PCT/GB 00/00326

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 19725949	A	24-12-1998	NONE	
EP 849309	A	24-06-1998	AT 190338 T DE 69607014 D PL 323815 A	15-03-2000 13-04-2000 22-06-1998
US 4456164	A	26-06-1984	AU 552231 B AU 1316383 A BE 896756 A BR 8302204 A CA 1192872 A DE 3312519 A DK 219583 A,B, FI 831515 A,B, FR 2527168 A GB 2120199 A,B GR 77477 A IE 54251 B JP 1842748 C JP 5024026 B JP 58203857 A MX 164246 B NL 8301431 A NO 831518 A,B, NZ 203820 A SE 458603 B SE 8302266 A ZA 8302553 A	22-05-1986 24-11-1983 17-11-1983 03-01-1984 03-09-1985 24-11-1983 19-11-1983 19-11-1983 25-11-1983 30-11-1983 24-09-1984 02-08-1989 12-05-1994 06-04-1993 28-11-1983 27-07-1992 16-12-1983 21-11-1983 13-09-1985 17-04-1989 19-11-1983 28-12-1983
FR 2655027	A	31-05-1991	NONE	

PATENT COOPERATION TREATY

PCT



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0121-JL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/00326	International filing date (day/month/year) 04/02/2000	Priority date (day/month/year) 06/02/1999
International Patent Classification (IPC) or national classification and IPC B65D81/26		
Applicant LINPAC PLASTICS LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 02/09/2000	Date of completion of this report 16.05.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Grondin, D Telephone No. +49 89 2399 2583 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00326

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*)

Description, pages:

1-9 as originally filed

Claims, No.:

1-10 as received on 17/04/2001 with letter of 17/04/2001

Drawings, sheets:

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00326

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-10
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00326

Concerning Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The subject-matter of claim 1 does not involve an inventive step for the following reasons:

Document DE 197 25 949 A is regarded as being the closest prior art of the subject-matter of claim 1 as it discloses a container comprising a porous wall structure having on its inner and outer surfaces respective impermeable fluid barrier film layers, the outer edges of the rim of the container being sealed together to define a space sealed in a fluid tight manner in order to retain the fluid absorbed therein.

The subject-matter of claim 1 differs from the subject-matter of DE 197 25 949 A in that a portion of the wall structure defines an interior space therein, which space is sealed from the remainder of the wall structure in a fluid tight manner.

Starting from DE 197 25 949 A the technical problem to be solved can therefore be regarded as how to provide a container presenting a wall structure that is not entirely an absorbing area.

To limit the space of absorption of the fluid in the wall structure is easily envisageable. It is simply a question of amount of material dedicated to the task of absorbing the fluid. A person skilled in the art would obviously envisage to provide seals in the wall structure to achieve a closed space preventing migration of the fluid into the remainder of the wall structure. Thus to solve the above mentioned problem he would logically arrive to the subject-matter of claim 1.

Therefore the present application does not meet the requirements of Article 33(3) PCT.

Dependent claims 2 to 10 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step as these features are known from documents DE 197 25 949 A or EP 0 849 309 A or are common obvious features for containers.

Therefore the present application does not meet the requirements of Article 33(3) PCT.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/00326

Concerning Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document DE 197 25 949 A is not mentioned in the description, nor is this document identified therein.

Independent claim 1 is not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

Independent claim 1 should therefore be redrafted accordingly. If, however, the applicant is of the opinion that the two-part form would be inappropriate, then reasons therefore should be provided in the letter of reply. In addition, the applicant should ensure that it is clear from the description which features of the subject-matter of claim 1 are already known in combination from the document D1 (see the PCT Guidelines, III-2.3a).

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CLAIMS

1. A container (1) comprising a porous wall structure having on its inner and outer surfaces respective impermeable, fluid barrier film layers (15,18) and being defined by a base wall (12), a continuous side-wall (13) upstanding therefrom and a peripheral rim (14) extending outwardly of the side-wall (13), wherein a portion of the wall structure defines an interior space (100) therein, which space (100) is sealed (17) from the remainder of the wall structure in a fluid tight manner between the inner and outer fluid barrier film layers (15,18) across the thickness of the wall structure and is at least partially filled by a material from which the wall structure is made, whereby, in use of the container (1), any fluid absorbed into the space (100) is retained therein and prevented from migrating into the remainder of the interior thickness of the wall structure.
2. A container (1) according to claim 1, wherein the material from which the container wall structure is made is a cellular material, preferably of open cell structure.
3. A container (1) according to claim 1 or 2, wherein the so-defined interior space (100) is provided in the base wall (12) of the container wall structure.
4. A container (1) according to claim 1, 2 or 3, wherein the inner fluid barrier film layer (15), at least in the region of the space (100), is perforated.
5. A container (1) according to any preceding claim, wherein the material is an absorbent material.

- 11 -

6. A container (1) according to any of claims, 1, 2, 4 and 5, wherein the interior space-defining seal (17) is in the rim (14) of the wall structure.
- 5 7. A container (1) according to any preceding claim, which is closed from the atmosphere by an impervious gas barrier film (19) sealed to the peripheral rim (14) of the wall structure.
8. A container (1) according to claim 7 when dependent upon claim 6, wherein the gas barrier film (19) and space-defining seal (17) are
10 coterminous
9. A container (1) according to claim 8, wherein said coterminous seals (17,19) are integral and unitarily formed and comprise an ultrasonic weld.
- 15 10. A container (1) according to an preceding claim wherein the space (100) is completely filled by the material from which the wall structure is made.

REPLACED BY
ART 34 AMDT

- 10 -

CLAIMS

1. A container comprising a porous wall structure defined by a base wall and a continuous side-wall upstanding therefrom, wherein at least a portion of the wall structure defines a space which is sealed in a fluid-tight manner and which is at least partially filled by a material from which the wall structure is made, said at least partially filled space being arranged to retain liquid therein.
2. A container according to claim 1, wherein the outer surface of the wall structure is provided with an impermeable fluid barrier film layer.
3. A container according to claim 1 or 2, wherein said defined space is sealed to provide a continuous space-defining seal between the inner and outer surfaces of the wall structure across the thickness thereof.
4. A container according to claim 1, 2 or 3, wherein the material from which the container wall structure is made is a cellular material, preferably of open cell structure.
5. A container according to any of claims 1 to 4, wherein the side-wall is provided with a peripheral rim.
6. A container according to any preceding claim, wherein the space is provided in the base wall of the container wall structure.
7. A container according to any preceding claim, wherein the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer.
8. A container according to claim 7, wherein the inner fluid barrier film layer, at least in the region of the space, is perforated.

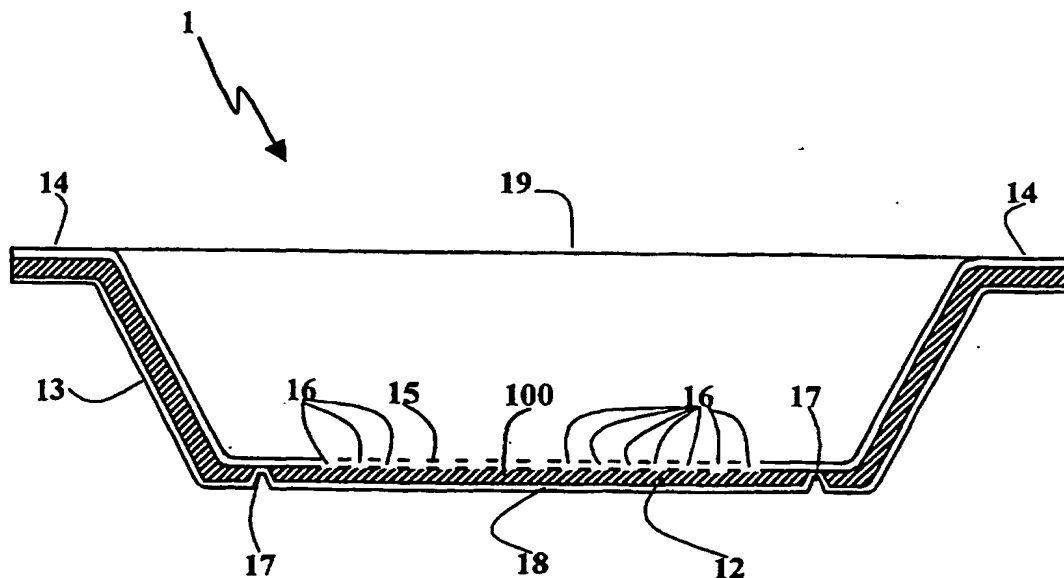
- 11 -

9. A container according to any preceding claim, wherein the material is an absorbent material.
- 5 10. A container according to claim 5, wherein said space-defining seal is provided in the rim or along the distal edge thereof.
11. A container according to claim 10, wherein the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer.
- 10 12. A container according to any preceding claim closed from the atmosphere by an impervious gas barrier film sealed to a or the peripheral rim of the container.
- 15 13. A container according to claim 12 when dependent upon claim 10 or 11, wherein said gas barrier film seal and said space-defining seal are conterminous.
14. A container according to any of claims 10 to 13, wherein at least a portion
20 of the base wall is perforated.
15. A container according to claim 13 or claim 14 when dependent thereon, wherein said coterminous seals are integral, are unitarily formed and comprise an ultrasonic weld.
- 25 16. A container according to any preceding claim, wherein the space is completely filled by the material from which the wall structure is made.

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B65D 81/26, 77/20	A1	(11) International Publication Number: WO 00/46125 (43) International Publication Date: 10 August 2000 (10.08.00)
(21) International Application Number: PCT/GB00/00326 (22) International Filing Date: 4 February 2000 (04.02.00) (30) Priority Data: 9902556.1 6 February 1999 (06.02.99) GB (71) Applicant (for all designated States except US): LINPAC PLASTICS LIMITED [GB/GB]; A1 Business Park, Knottingley, West Yorkshire WF11 0BS (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): JENKINS, Gary, John, Mackay [GB/GB]; Elmwood, Church Lane, Wetherby, West Yorkshire LS22 5AU (GB). (74) Agent: BRITTER, Keith, Palmer; Britter and Co., Barn West, Dixies, High Street, Ashwell, Hertfordshire SG7 5NT (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL



(57) Abstract

A container (1) comprising a porous wall structure defined by a base wall (12) and a continuous side-wall (13) upstanding therefrom, wherein at least a portion of the wall structure defines a space (100) which is sealed (17) in a fluid-tight manner and which is at least partially filled by a material from which the wall structure is made, said at least partially filled space (100) being arranged to retain liquid therein.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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EE	Estonia						

PACKAGING TRAY FORMED FROM ABSORBANT MATERIAL**DESCRIPTION**

5 This invention relates to a container for use in the storage and/or display of products, such as fresh meat and other types of fresh food product, and is related especially, but not exclusively, to a container which is tray-shaped or dish-shaped and which may be made of a plastics material.

10 There is a wide range of existing tray-shaped containers for the storage and display at point-of-sale for, say, fresh meat. In the simplest form, these are made of a single layer of a solid or cellular plastics material

 During storage of fresh meat and other food products, fluids may
15 exude from the foodstuff and seep in to the internal wall of the container causing undesirable discoloration thereof. In these circumstances, some form of absorbent material may be located upon the inner surface of the base of the container to absorb such fluid and to prevent the seepage of the exuded fluid on to the remainder of the container wall structure.

20 There have been a number of developments and improvements to separate the absorbent material from the food product being packaged. The absorbent material may be sandwiched between a perforated film or sheet and the base of the container or, in another example, the tray is made of a cellular
25 structure which is capable of absorbing fluid if the surface is perforated. The disadvantages of these developments is that the fluid may seep through the absorbent material or through the cellular foam structure and exude from the open rim or flange of the container.

30 Also, some fresh food products, particularly fresh meat products, are stored and displayed at point-of-sale in containers of the type in question with

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a prescribed atmosphere of gas, such as oxygen and carbon dioxide, depending on established practice in modified atmosphere packaging of fresh food products, in which case, the container has to have its normally open top closed and sealed to the rim of the container by means of, for example, a transparent
5 barrier film.

Containers for this use are made from plastics materials which have at least one layer which is an impermeable fluid barrier. This is normally on the inner surface of the container. It is obvious that if this surface is perforated in
10 order to allow juices or liquids, which exude from the packaged foodstuff, to be absorbed on an absorbent material or cellular structure within the base or wall of the container, then the modified gas atmosphere can escape from the container by the same route.

15 It is an object of the present invention to provide a container which overcomes, or at least substantially reduces, the disadvantages associated with the known types of container, particularly those used for the storage of fresh meat and other food products, as discussed above.

20 Accordingly, the invention resides in a container, preferably of tray or dish-like shape, comprising a porous wall structure defined by a base-wall and a continuous side-wall upstanding therefrom, wherein at least a portion of the wall structure defines a space which is sealed in a fluid-tight manner and which is at least partially filled by a material from which the wall structure is
25 made, said at least partially filled space being arranged to retain liquid therein.

By "porous wall structure" is meant, throughout this specification, a wall structure through whose thickness a fluid, namely a gas or liquid, is capable of migrating or otherwise flowing; for example, a wall structure of
30 cellular material of open cell structure.

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The outer surface of the wall structure is preferably provided with an impermeable fluid barrier film layer.

5 Preferably, the defined space is sealed from the remainder of the container wall structure by conventional techniques or, for example, by ultrasonic welding, to provide, for example, a continuous space-defining seal between the inner and outer surfaces of the wall structure across the thickness thereof. Also, the space is preferably provided in a base wall of the container wall structure.

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The space may be completely filled by the material from which the container wall structure is made by, say thermoforming; for example, a cellular material, such as expanded polystyrene, of open cell structure which can preferably absorb a fluid. If, say, the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer, then that layer, in the region of the space, may be perforated to permit fluid in the container to seep or otherwise pass into the space where it can be absorbed by the material of the wall structure or other absorbant material located in the space.

20 In this manner, any fluid such as blood or other fluid exuding from, say, a fresh meat product which is stored and displayed within the container and which migrates into the space defined within the wall structure, is prevented from migrating or otherwise passing further into the thickness of the remainder of the container wall structure.

25

Similarly, any gas(es), provided as prescribed atmosphere within the container and retained therein by an impervious, gas barrier film as a closure for the container, which migrates into the space defined within the container wall structure, usually via perforations in an impermeable, gas barrier sheet layer on the inner surface of the wall structure, is prevented from migrating further through and along the thickness of the wall structure and escaping from

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the container via the exposed open edge of the wall structure at the rim or peripheral flange of the container.

5 Additionally, the container may be provided with a peripheral rim or flange attached to the upper edge of the side wall, said space-defining seal may be provided in or across the thickness of the flange or may alternatively be provided along the distal edge thereof.

10 The gas barrier film seal may be effected along the peripheral rim or flange of the container, and in an embodiment the gas barrier film seal and said space-defining seal are conterminous.

15 Embodiments of container in accordance with the invention will now be described by way of example and with reference to the accompanying drawings in which:

Figure 1 is a bottom plan view of a first embodiment of container;

20 Figure 2 is a section along the line II-II in Figure 1;

Figure 3 is a sectional end view of a second embodiment of container;

25 Figure 4 is a sectional end view of a third embodiment of container;
and

Figure 5 is a sectional end view of a fourth embodiment of container.

30 Referring firstly to Figures 1 and 2 of the drawings, a rectangular, tray-shaped container thermoformed from open cell expanded polystyrene sheet, as indicated generally at 1, has a porous wall structure comprising a base wall 12,

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a continuous, tapered side wall 13 upstanding therefrom and an outwardly extending peripheral rim 14. The inner and outer surfaces of the wall structure have thereon respective impermeable, fluid barrier film layers 15 and 18.

5 The inner layer 15 on the base wall 12 of the container 1 is perforated, in a regular array of perforations, as shown at 16, to allow any excess blood and/or other fluids exuding from a fresh meat product placed on the base wall 12 of the container 1, to pass into the thickness of the base wall 12 for absorption therein.

10

 At least the major portion of the base wall 12 of the container 1 is sealed, in a fluid type manner at 17, from the remainder of the wall structure of the container 1 to define a space 100 sealed from the remainder of the wall structure. In this manner, any liquid such as blood and/or any other exuded
15 fluids, absorbed in that sealed space 100 of the base wall 12, is unable to migrate into the thickness of the remainder of the wall structure of the container 1, thereby preventing, or at least substantially reducing, any undesirable discoloration of the remainder of the wall structure and eliminating any seepage of the liquid from the open flange or rim 14 of the
20 container 1.

 As seen in Figure 1, the seal 17 is continuous and generally rectangular in plan, following the profile of the rectangular base wall 12, of the container 1. That seal 17, which is effectively represented by the bringing together, in a
25 fluid-type manner, of the outer surface and inner surface of the base wall 12, such being formed by conventional thermoforming techniques.

 If needs be, the container 1 may be closed, with the associated fresh meat product (not shown) contained therein, by means of a transparent,
30 impervious, fluid barrier film 19 sealed to the rim or peripheral flange 14 of the container 1.

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Thus, any modified atmosphere of, say, oxygen and carbon dioxide gases, within the sealed container 1, is retained therein, as any of the gas(es) is prevented from migrating into and through the thickness of the remainder of the wall structure and escaping from the exposed free edge of the peripheral flange or rim 14.

In use of the container 1, any blood or other fluids exuding from a fresh meat product placed upon the inner surface layer 15 of the base wall 12 of the container 1 will be absorbed into the space 100 defined within the thickness of the base wall 12 but filled with absorbent material from which the container has been thermoformed, is unable to seep into the remainder of the wall structure, due to the continuous seal 17, as discussed above. Thus, undesirable discoloration of the remainder of the wall structure and loss of any modifying gas(es) are eliminated or substantially reduced.

Turning now to Figure 3, a container 30 of similar rectangular form to that described in connection with Figures 1 and 2 is shown. The container 30, which is thermoformed from open cell expanded polystyrene, comprises a base wall 32, a continuous, tapered side-wall 33 upstanding therefrom and an outwardly extending peripheral rim 34. The inner and outer surfaces of the wall structure have thereon respective impermeable, fluid barrier film layers 35 and 38.

The inner layer 35 on the base wall 32 of container 30 is perforated, in a regular array of perforations, as shown at 36, to allow any excess blood and/or other fluids exuding from a product, such as a fresh meat product, placed on the base wall 32 of the container 30, to pass into the thickness of the base wall 32 for absorption therein.

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The wall structure is sealed, at 37, in a fluid type manner to define a space 100' sealed from the peripheral or distal edge of the rim 34. In this manner, any liquid such as blood and/or any other exuded fluids, absorbed in that sealed space 100' of the base and side wall 32 and 33 respectively is
5 unable to migrate to the distal edge of the rim 34 and seep or flow out of the container 30.

The seal 37 is continuous and generally rectangular in plan, following the profile of the peripheral rim 34 of the container 30. The seal 37, which is
10 effectively represented by the bringing together, in a fluid type manner, of the outer and inner surfaces 38, 35, is effected by an ultrasonic weld. Such welds fuse two layers together to provide a fluid tight seal 37 such that liquids and gases cannot migrate across it. In Figure 3, a double ultrasonic weld is used to provide the seal 37. The seal 37 could also be effected by the application of
15 heat and pressure as is conventional in the art, for example during thermoforming of the container 30.

As with the first embodiment, the container 30 may be provided with a transparent impervious, fluid barrier film 39 sealed to the rim or peripheral
20 flange 34 of the container 30. Such a film 39 effectively closes the container 30 and provides a sealed container 30 from which gases and fluids cannot escape, the seal 37 preventing migration from the rim 34 and the barrier film 39 sealing the container 30 from the atmosphere.

25 Figure 4 shows a similar container 40 to that of Figure 3, comprising a base wall 42, a continuous, tapered side-wall 43 upstanding therefrom and an outwardly extending peripheral rim 44. The outer surface of the wall structure has thereon an impermeable, fluid barrier film layer 48, the inner surface being a finishing layer 45 provided on the open cell expanded polystyrene.

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The container 40 is provided with an array of perforations, as shown at 46, to allow any liquids seeping or exuding from a product placed on the base wall 42 to flow or migrate into the base wall 42 of the container 40. The container 40 is sealed at 47 by an ultrasonic weld between the peripheral rim 44 and a transparent impervious, fluid barrier film 49.

Thus, any fluid exuding from a product is retained in a space 100'' defined by the thickness of the wall structure 42, 43 and by the barrier film 49. The seal 47 prevents migration of fluids from the distal edge of the rim 44 and the provision of a barrier film 49 seals the container 40 from the atmosphere.

Referring now to Figure 5, there is shown a further embodiment of container 50 comprising a base wall 52, a continuous, tapered side-wall 53 upstanding therefrom and an outwardly extending peripheral rim 54. The inner and outer surfaces of the wall structure have, thereon, respective impermeable, fluid barrier film layers 55 and 58.

The inner barrier film layer 55 is, in the region of the base wall 52 provided with an array of perforations, as shown at 56, to allow any liquids seeping or exuding from a product placed on the base wall 52 to flow or migrate into the base wall 52 of the container 50. The distal edge of the rim 54 is provided with a fluid-tight seal 57 which may be effected by a solvent or a paint applied to that edge. The seal 57 effectively bridges the gap between the inner and outer layers 55, 58 across the thickness of the wall structure at the peripheral edge. Thus a space 100''' is provided, from which liquids contained or retained therein cannot escape. The wall structure is provided by open-cell expanded polystyrene which absorbs liquids which flow into the space 100''' from a product placed on the base 52 of the container 50.

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The container 50 may be provided with an impervious, fluid barrier film 59 which is sealed to the rim 54 of the container 50 and thereby closes the container 50, sealing any product contained therein from the atmosphere.

5 In a further embodiment the fluid barrier inner layer 55 of the container 50 may be replaced with a simple finishing layer, the seal 57 being effected between the impervious barrier layer 59 and the outer barrier layer 58, similar to that described with reference to Figure 4, except at the periphery of the rim 54.

10

It is noted that each of the barrier films discussed above comprises a laminate of, for example, five layers of which preferably one constitutes a gas barrier layer, comprising, for example, copolymers of ethylene and vinyl alcohol (EVOH), the other layers being adhesives or stabilising layers. The
15 barrier film layers are applied to the body of open-cell expanded polystyrene in a manner well established in the art.

Thus, it can be seen that all embodiments of the invention provide containers which include spaces which are at least partially defined by their
20 respective wall structures and which are sealed, in a fluid-tight manner, from the remainder of their wall structures, to prevent any fluid from spreading therein to or into the remainder of the container or, from or out of the container, as the case may be. Further, any gas migration along the thickness of the wall structure, or from the container, is at least partially reduced and, in
25 certain circumstances, eliminated.

It is to be appreciated that, although the embodiments of container described above are generally tray-shaped the invention can embody any other shape of container having a porous wall structure.

CLAIMS

1. A container comprising a porous wall structure defined by a base wall and a continuous side-wall upstanding therefrom, wherein at least a portion of the wall structure defines a space which is sealed in a fluid-tight manner and which is at least partially filled by a material from which the wall structure is made, said at least partially filled space being arranged to retain liquid therein.
2. A container according to claim 1, wherein the outer surface of the wall structure is provided with an impermeable fluid barrier film layer.
3. A container according to claim 1 or 2, wherein said defined space is sealed to provide a continuous space-defining seal between the inner and outer surfaces of the wall structure across the thickness thereof.
4. A container according to claim 1, 2 or 3, wherein the material from which the container wall structure is made is a cellular material, preferably of open cell structure.
5. A container according to any of claims 1 to 4, wherein the side-wall is provided with a peripheral rim.
6. A container according to any preceding claim, wherein the space is provided in the base wall of the container wall structure.
7. A container according to any preceding claim, wherein the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer.
8. A container according to claim 7, wherein the inner fluid barrier film layer, at least in the region of the space, is perforated.

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9. A container according to any preceding claim, wherein the material is an absorbent material.
- 5 10. A container according to claim 5, wherein said space-defining seal is provided in the rim or along the distal edge thereof.
11. A container according to claim 10, wherein the inner surface of the wall structure is provided with an impermeable, fluid barrier film layer.
- 10 12. A container according to any preceding claim closed from the atmosphere by an impervious gas barrier film sealed to a or the peripheral rim of the container.
- 15 13. A container according to claim 12 when dependent upon claim 10 or 11, wherein said gas barrier film seal and said space-defining seal are conterminous.
- 20 14. A container according to any of claims 10 to 13, wherein at least a portion of the base wall is perforated.
15. A container according to claim 13 or claim 14 when dependent thereon, wherein said coterminous seals are integral, are unitarily formed and comprise an ultrasonic weld.
- 25 16. A container according to any preceding claim, wherein the space is completely filled by the material from which the wall structure is made.

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Figure 1

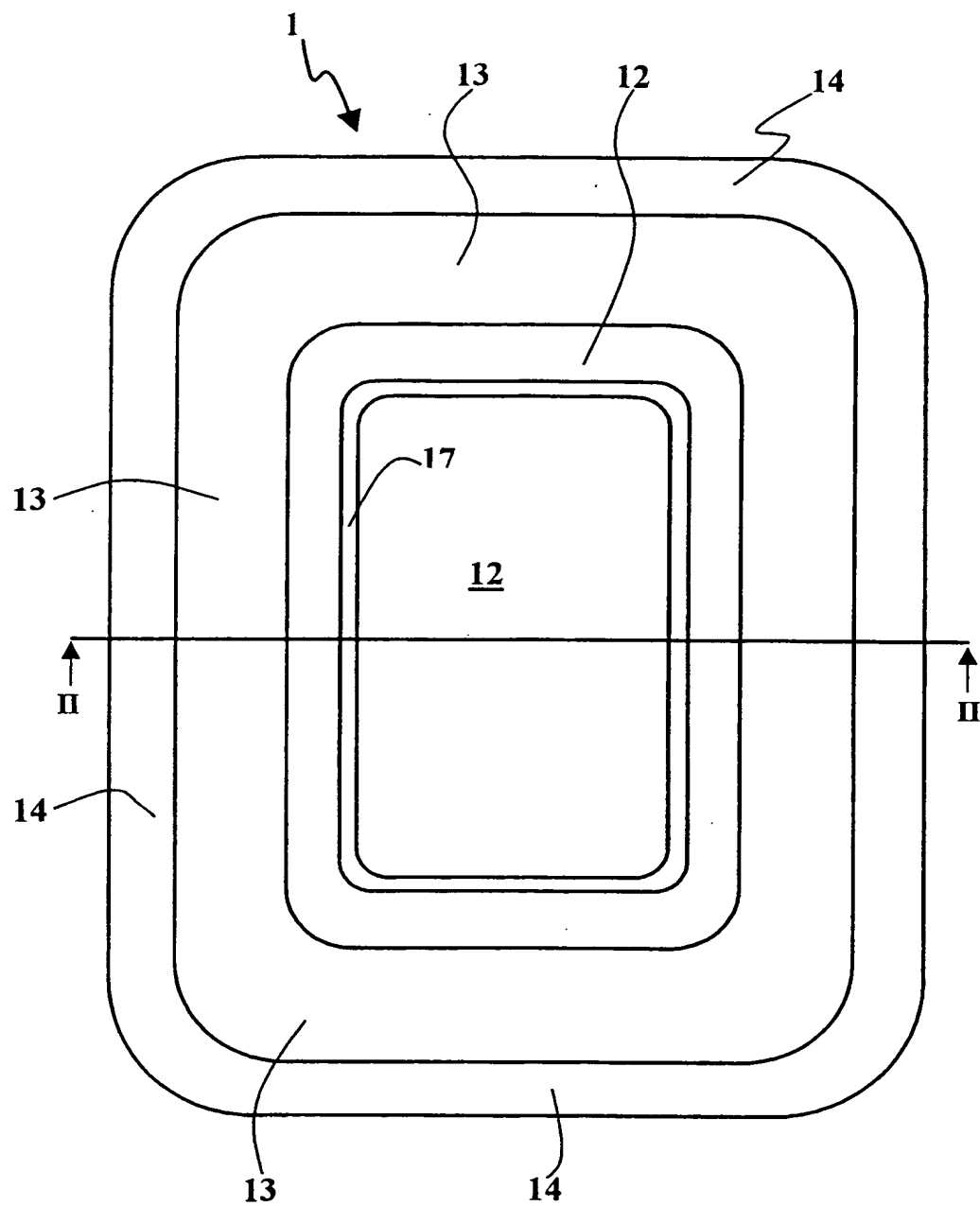


Figure 2

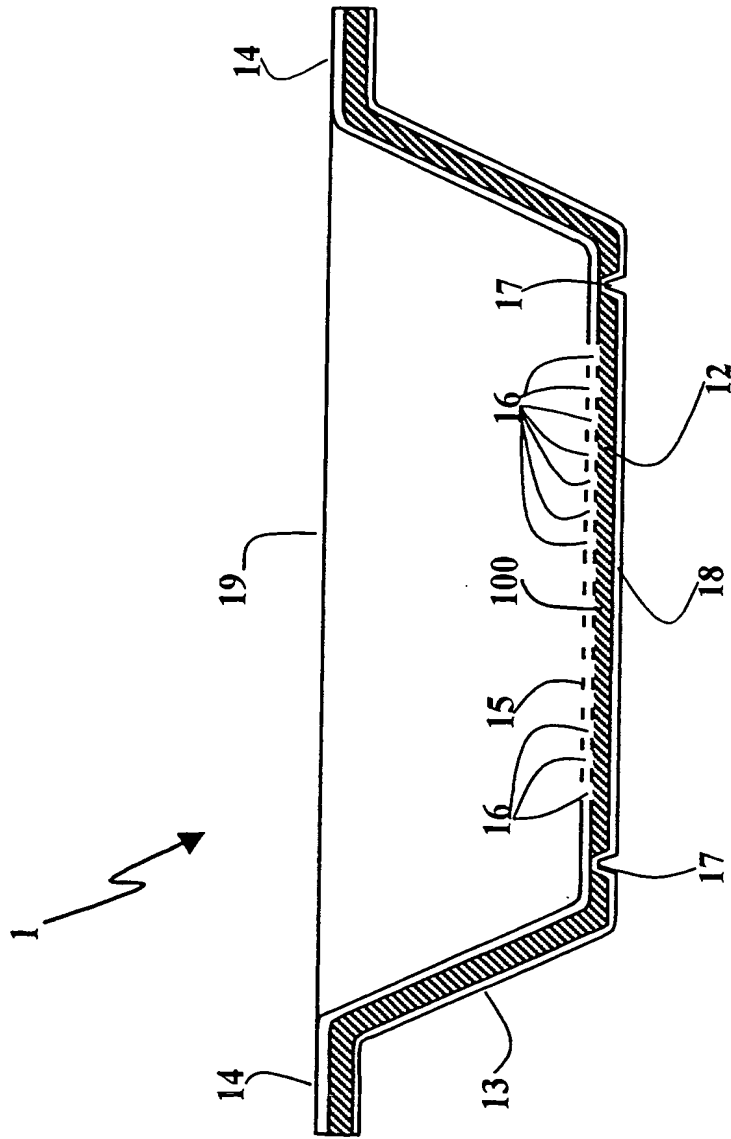
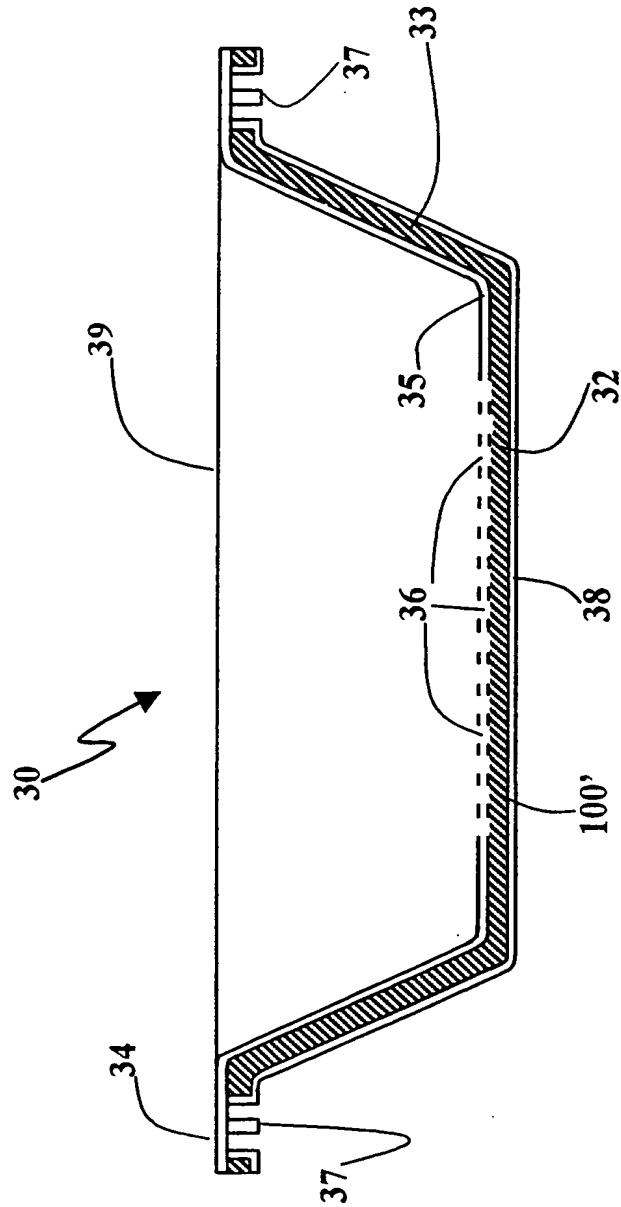
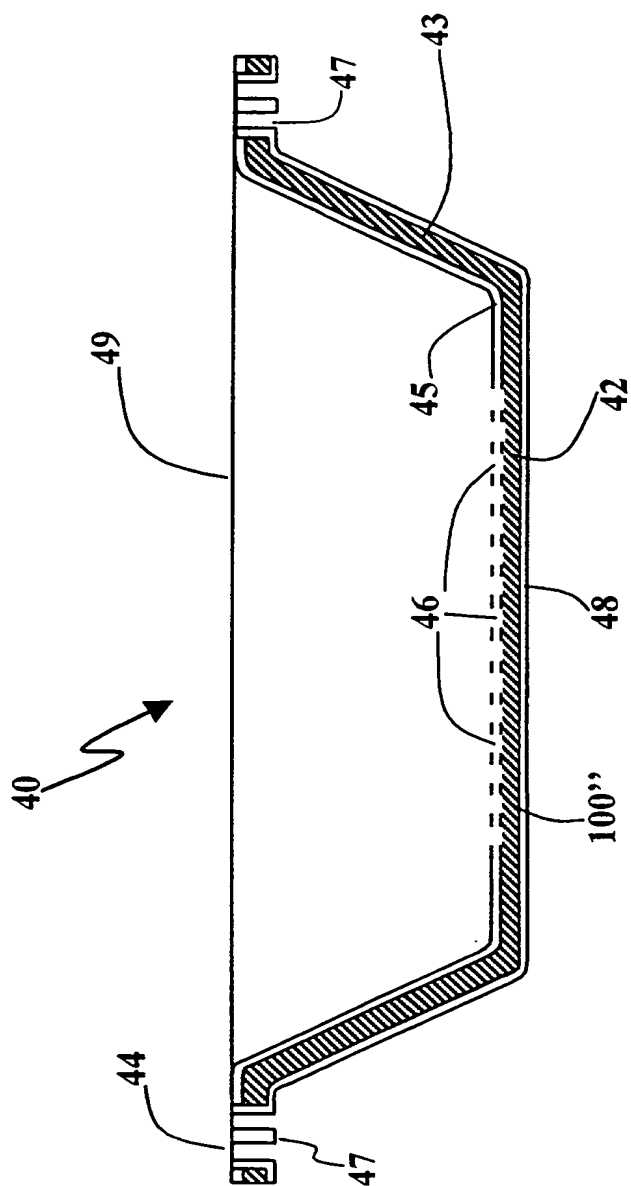


Figure 3



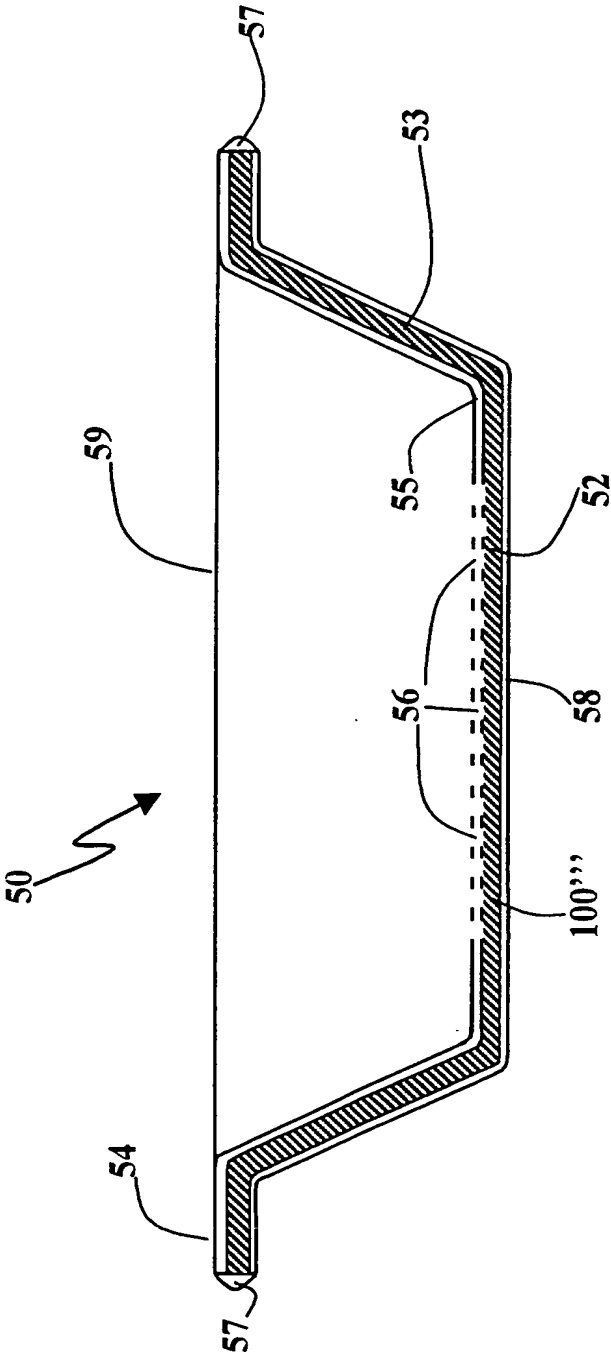
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Figure 4



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Figure 5



INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/00326

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B65D81/26 B65D77/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 197 25 949 A (SILVER-PLASTICS) 24 December 1998 (1998-12-24)	1-11, 14, 16
Y	column 4, line 49 - column 5, line 33; figures 1, 2	12
X	EP 0 849 309 A (LANZANI) 24 June 1998 (1998-06-24)	1, 2, 4-9, 16
Y	page 6, line 1 - line 42; figures 2, 3	
Y	US 4 456 164 A (FOSTER) 26 June 1984 (1984-06-26)	12
A	column 3, line 47 - line 68; figure 6	13, 15
A	FR 2 655 027 A (GIZEH) 31 May 1991 (1991-05-31)	13, 15
	page 3, line 35 - page 4, line 30; figures	

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/00326

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